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Fluoroquinolone-Resistant *Neisseria gonorrhoeae* — San Diego, California, 1997

The fluoroquinolones ciprofloxacin and ofloxacin are among the antimicrobials recommended for treating uncomplicated gonorrhea (*1*). Fluoroquinolone-resistant strains of *Neisseria gonorrhoeae* have been identified frequently during the 1990s in the Far East (*2*). In the United States, fluoroquinolone-resistant *N. gonorrhoeae* has been reported sporadically; resistance associated with clinical treatment failure has been reported previously in only one person, who probably acquired the infection in the Philippines (*3–5*). This report describes the results of an investigation in 1997 of two cases of gonococcal infection in the United States with strains with a higher level of fluoroquinolone resistance than reported previously; clinical treatment failure occurred in one case.

CASE REPORTS

Patient 1

On July 14, a 24-year-old man sought care at the San Diego County Public Health Sexually Transmitted Diseases (STD) clinic following a 2-day history of purulent urethral discharge. Four days before onset of symptoms, he had had vaginal intercourse with a commercial sex worker in San Diego. He reported no other recent sex partners or travel outside the United States.

Gram-negative intracellular diplococci were identified in the urethral discharge. The culture grew *N. gonorrhoeae* and was sent for antimicrobial susceptibility testing as part of the national Gonococcal Isolate Surveillance Project (GISP). He received a single dose of 400 mg ofloxacin orally and began taking 100 mg doxycycline orally twice a day for 10 days for possible chlamydial co-infection.

The patient's urethral discharge persisted, and on July 17 he sought care from his primary-care physician. Repeat urethral culture grew *N. gonorrhoeae*; this isolate was not available for further testing. The patient was treated with 500 mg ceftriaxone intramuscularly, and his symptoms resolved. The clinical treatment failure was not reported to the health department.

Patient 2

On July 17, a 22-year-old man sought care at the San Diego County Public Health STD clinic following a 2-day history of purulent urethral discharge. He reported having

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had multiple female sex partners. Two weeks before gonorrhea was diagnosed, he had had one sexual contact with a woman from the United States whom he met at a nightclub frequented by U.S. military personnel in Tijuana, Mexico. He also reported having had a steady sex partner for 7 months. He had traveled to Asia in October 1996.

Gram-negative intracellular diplococci were identified in his urethral discharge. The culture grew *N. gonorrhoeae* and was sent to the GISP laboratory for susceptibility testing. The patient received a single dose of 400 mg ofloxacin orally and began taking 100 mg doxycycline orally twice a day for 10 days. His symptoms resolved without further treatment.

His steady sex partner was tested for gonorrhea; an endocervical culture was negative. The same regimen of ofloxacin and doxycycline was prescribed, which she reported completing. She reported no other recent sex partners or travel to Asia. The sex partner from the nightclub could not be located for follow-up.

FOLLOW-UP INVESTIGATION

On October 17, 1997, the STD Program of the San Diego Department of Health was notified by the GISP laboratory that the *N. gonorrhoeae* isolates from patients 1 and 2 were resistant to ciprofloxacin and ofloxacin (minimum inhibitory concentration [MIC] 16 µg/mL for both antibiotics). The isolates also were resistant to tetracycline (MIC 2.0 µg/mL) but sensitive to ceftriaxone (MIC 0.008 µg/mL) (*6–8*).

On October 28, patient 1 was reexamined, and a repeat urethral culture was negative. He reported two female partners since July; endocervical cultures from both were negative. One of the partners reported another male partner; his urethral culture was negative. None of these contacts reported other sex partners or travel to Asia.

On October 29, patient 2 and his steady partner were re-examined; repeat urethral and endocervical cultures were negative. The patient's symptoms had not recurred since his initial treatment in July. The patient and his partner reported having had no other sex partners since July.

Isolates from patients 1 and 2 belonged to the same auxotype/serovar class, PA/IB-3 (proline- and arginine-requiring), and had identical antimicrobial susceptibility profiles, suggesting that they were the same strain. Molecular studies indicated that the isolates had identical mutations in the genes encoding DNA gyrase (*gyrA*) and topoisomerase IV (*parC*), mutations associated with fluoroquinolone resistance. No other fluoroquinolone-resistant *N. gonorrhoeae* isolates have been identified in San Diego County, neighboring Orange County, and the city of Long Beach. Gonococcal isolates from Tijuana have been requested for antimicrobial susceptibility testing.

In October 1997, a survey of 79 providers who treat patients in the high-risk STD area of San Diego County indicated that 80% used ceftriaxone or cefixime and 20% used ofloxacin or ciprofloxacin to treat gonorrhea. None reported treatment failures. Local military health-care facilities also treat gonorrhea with ceftriaxone.

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Editorial Note: Fluoroquinolones and cephalosporins became the recommended therapies for gonorrhea following the appearance of penicillin- and tetracycline-resistant *N. gonorrhoeae* during the 1980s and early 1990s (*1,2*). Fluoroquinolone-resistant *N. gonorrhoeae* (ciprofloxacin MIC ≥1.0 µg/mL or ofloxacin MIC ≥2.0 µg/mL) (*6,8*) emerged during the 1990s and became well-established in several areas (e.g., Hong Kong, Japan, and the Philippines) (*2*). During the same period in the United States, *N. gonorrhoeae* with decreased susceptibility to ciprofloxacin (MIC 0.125–0.5 µg/mL) became endemic in at least one area and occurred sporadically in other areas (*3–5*). Among the 26 clinics participating in GISP, the overall prevalence of *N. gonorrhoeae* with decreased susceptibility to ciprofloxacin was 0.3% in 1991 (*5*) and 0.4% in January–June 1997 (CDC, unpublished data). The isolates from the two patients described in this report had the highest level of fluoroquinolone resistance ever reported in the United States.

Failure of infection to respond to single-dose therapy with 500 mg of ciprofloxacin has been reported with strains of *N. gonorrhoeae* with MICs ≥1.0 µg/mL (*2*), but data are limited. In one trial, treatment with 500 mg ciprofloxacin failed to cure 45% of patients who had infections caused by *N. gonorrhoeae* with ciprofloxacin MICs ≥4.0 µg/mL (*9*). In San Diego, doxycycline probably was the effective component of therapy because the isolates had tetracycline MICs at the low end of the resistance range (≥2.0 µg/mL) (*6,8*).

Identifying the sources of fluoroquinolone-resistant strains of *N. gonorrhoeae* found in the United States has been difficult, but some infections have been linked to importation from Southeast Asia and contact with commercial sex workers (*3*). In San Diego, both patients had anonymous sex contacts, but no international link was found. Military personnel travel frequently to Asia and are a potential source of imported strains of antimicrobial-resistant *N. gonorrhoeae*. However, the military treatment regimen decreases the likelihood of spread of fluoroquinolone-resistant strains.

Although the two San Diego isolates were the same strain, no epidemiologic link between the two patients could be identified. Despite enhanced surveillance, no additional cases of fluoroquinolone-resistant *N. gonorrhoeae* have been detected in San Diego. The spread of fluoroquinolone-resistant *N. gonorrhoeae* locally may be limited by the frequent use of cephalosporins for treating gonorrhea.

Because fluoroquinolone-resistant *N. gonorrhoeae* is rare in the United States, CDC recommends fluoroquinolones to treat gonococcal infections (*1*). However, ceftriaxone, cefixime, or spectinomycin should be used if the infection was acquired in Asia. In some areas (e.g., Cleveland, Ohio) where strains with decreased susceptibility to fluoroquinolones are endemic, fluoroquinolones should not be used to treat gonorrhea because these strains may represent a pool from which fluoroquinolone-resistant strains may emerge (*3,5*). Clinicians should obtain a culture and request susceptibility testing for any patient with apparent treatment failure after recommended therapy and report these cases promptly to the local health department.

This investigation underscores the importance of timely surveillance for antibiotic-resistant *N. gonorrhoeae*. As clinical laboratories increasingly use nonculture methods for the diagnosis of gonorrhea, the importance of maintaining *N. gonorrhoeae* culture capability and the ability to measure antimicrobial susceptibility in public health laboratories increases. Laboratories serving patients with gonococcal

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infections should maintain culture capability to evaluate patients with apparent treatment failure. Laboratories should report any isolates meeting proposed National Committee for Clinical Laboratory Standards criteria for resistance to ciprofloxacin (MIC ≥1.0 µg/mL; zone inhibition diameter [5 µg disk] ≤27 mm) or ofloxacin (MIC ≥2.0 µg/mL; zone inhibition diameter [5 µg disk] ≤24 mm) to their state public health laboratory (*6,8*). CDC laboratories will confirm resistant isolates.

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Diabetes During Pregnancy — United States, 1993–1995

Diabetes during pregnancy, whether pregestational (type 1 or type 2) or gestational, increases the risk for adverse maternal and infant outcomes (e.g., congenital anomalies, cesarean delivery, macrosomia, and future metabolic abnormalities) (*1–3*). Identification and careful management of diabetes during pregnancy can reduce poor maternal and infant outcomes (*4–6*). Diabetes prevalence and prenatal-care use varies among racial/ethnic groups and by maternal age and other characteristics (*1,7,8*). Higher than expected diabetes rates for women of childbearing age have been reported among many immigrant and other populations undergoing lifestyle changes (e.g., physical activity and diet) (*1*). This report summarizes an analysis of U.S. birth certificates during 1993–1995 to describe maternal diabetes and associated prenatal care among racial/ethnic groups and updates a previous report (*7*).

U.S. birth certificate data for all resident singleton, live-born infants for 1993–1995 were combined to improve reliability of race/ethnicity–specific diabetes rates. Maternal characteristics included age at delivery, self-reported race/ethnicity, birthplace (defined as born within or outside the 50 states and the District of Columbia), the month

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that prenatal care was initiated, and whether diabetes was reported as a medical risk factor for the pregnancy. Maternal diabetes is reported on a checkbox on the birth certificate; however, the type of diabetes (pregestational or gestational) is not recorded. Data for Asian Indian, Korean, Samoan, and Vietnamese women were available for seven states (California, Hawaii, Illinois, New Jersey, New York, Texas, and Washington). Age-adjusted diabetes rates were calculated to account for differences in the maternal age distributions of the racial/ethnic and birthplace groups. Age-adjusted rates were standardized to the U.S. maternal age distribution for 1993–1995 singleton live births. Rates with numerators <20 were not calculated because numbers were too small to provide stable estimates. Proxy measures of the possibility of adequate diabetes screening and treatment included 1) the proportion of mothers with diabetes who entered care after the first trimester as a measure of inadequate care for pregestational diabetes, and 2) the proportion of mothers who entered prenatal care in the eighth or ninth month (i.e., late care) or who received no prenatal care as a measure of inadequate or no screening or treatment.

During 1993–1995, the maternal diabetes rate was 25.3 per 1000 women (Table 1). Prevalence rates by maternal race/ethnicity ranged from 56.1 for Asian Indian women to 19.3 for Korean women. Diabetes rates increased steadily with age from 8.3 per 1000 women aged <20 years to 65.6 for women aged 40–49 years. Age-adjusted rates were higher than unadjusted rates for American Indian, non-Hispanic black, Mexican, Puerto Rican, Hawaiian, and Samoan women and lower for Asian Indian, Chinese, Japanese, Filipino, Korean, Vietnamese, Central and South American, Cuban, and non-Hispanic white women (7). Age-adjusted diabetes rates were highest among American Indian (52.4), Asian Indian (48.3), Puerto Rican (38.7), Hawaiian (32.6), and Filipino (32.0) women and lowest among Korean (16.1) and Vietnamese (19.5) women.

Overall, mothers born outside the United States had a higher diabetes rate than U.S.-born women (unadjusted: 28.0 compared with 24.8; adjusted: 26.4 compared with 25.0) (Table 2). However, the effect of birthplace varied by race/ethnicity. Both before and after adjusting for age, diabetes rates were at least 25% greater among Asian Indian, Samoan, and non-Hispanic black women who were born outside the United States than among U.S.-born women; however, Japanese women born in the United States were more likely to have diabetes than those born outside the United States.

Mothers with diabetes were more likely than mothers without diabetes to initiate prenatal care during the first trimester and less likely to initiate care during the eighth or ninth month of gestation or to receive no care, regardless of race/ethnicity (Table 3). Among mothers with diabetes, first-trimester initiation of care ranged from 59.0% among Samoan women to 90.4% of Cuban women. Among groups with the highest diabetes prevalence, the percentage of women with diabetes receiving care during the first trimester was 88.4% among Chinese, 85.6% among Filipino, 82.6% among Asian Indian, 77.1% among Puerto Rican, and 71.1% among American Indian women.

An average of 105,122 mothers per year initiated prenatal care during the eighth or ninth month of pregnancy or received no care. Approximately half of these women were non-Hispanic black or Mexican. Among mothers with diabetes, 1.3% had late or no prenatal care, including 3.3% of American Indian, 2.9% of Central/South American, 2.8% of Asian Indian, 2.4% of Mexican, 2.3% of Puerto Rican, and 2.2% of black non-Hispanic women. Among Chinese and Filipino mothers with diabetes, 1.0% had

TABLE 1. Number and rate* of diabetes during pregnancy, by race/ethnicity and age of mother — United States, 1993–1995

Race/Ethnicity	No.†	Age (yrs) of mother						Total	
		<20	20–24	25–29	30–34	35–39	40–49	Unadjusted	Age-adjusted§
Non-Hispanic									
White	6,996,046	10.0	17.8	24.5	30.3	41.3	56.1	25.3	24.3
Black	1,770,102	6.5	14.0	26.1	40.3	57.4	81.1	22.6	27.5
Hispanic									
Mexican	1,331,361	6.4	12.5	23.7	41.9	63.8	88.8	22.8	27.5
Puerto Rican	161,065	8.8	21.4	36.3	56.9	79.7	107.7	31.6	38.7
Cuban	35,148	¶	14.7	23.6	30.2	40.4	53.4	24.9	22.7
Central or South American	271,639	5.6	11.4	21.7	35.8	56.4	79.9	25.4	24.3
American Indian/ Alaskan Native	108,982	12.9	26.8	49.5	77.3	110.2	150.6	43.9	52.4
Asian/Pacific Islander									
Chinese	77,359	¶	11.5	26.7	40.4	60.8	75.1	39.1	27.3
Japanese	25,885	¶	20.3	16.9	26.3	37.4	67.4	26.8	21.6
Hawaiian	16,982	11.4	16.8	33.3	47.5	67.1	¶	28.9	32.6
Filipino	88,487	8.0	16.2	28.8	47.5	69.5	100.0	39.8	32.0
Asian Indian**	31,574	¶	26.0	45.2	70.5	109.9	108.0	56.1	48.3
Korean**	24,918	¶	9.0	13.3	22.9	31.0	48.6	19.3	16.1
Samoan**	4,855	¶	¶	27.4	42.4	69.8	¶	25.7	28.7
Vietnamese**	34,140	¶	6.5	16.6	34.6	41.4	70.8	24.3	19.5
Total††	**11,384,926**	**8.3**	**16.3**	**25.1**	**33.8**	**47.4**	**65.6**	**25.3**	**—**

*Per 1000 singleton live-born infants in specified population.
†Women for whom diabetes status was reported.
§Directly standardized to the aggregate population of all race/ethnicities.
¶Numbers were too small for meaningful analysis.
**Data available for seven states (California, Hawaii, Illinois, New Jersey, New York, Texas, and Washington).
††Includes races other than those listed.

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TABLE 2. Number and rate* of diabetes for women born in the 50 states and the District of Columbia (DC) and for women born elsewhere, by race/ethnicity — United States, 1993–1995

Race/Ethnicity	Women born in 50 states and DC			Women born elsewhere		
	No.†	Unadjusted rate	Adjusted rate	No.†	Unadjusted rate	Adjusted rate
Non-Hispanic						
White	6,653,662	25.2	24.3	332,677	27.2	23.0
Black	1,618,276	21.2	26.6	143,659	39.5	33.4
Hispanic						
Mexican	494,906	23.2	31.1	834,834	22.5	25.7
Puerto Rican	96,380	28.0	36.2	64,137	37.0	41.4
Cuban	11,945	23.0	24.3	23,181	25.8	21.4
Central or South American	18,347	17.6	21.3	252,773	26.0	24.3
American Indian/ Alaskan Native	104,322	44.0	53.0	4,442	43.0	42.1
Asian/Pacific Islander						
Chinese	6,914	39.1	28.6	70,171	39.0	27.1
Japanese	12,175	35.3	27.7	13,681	19.3	15.6
Hawaiian	16,568	28.8	32.7	410	§	33.2
Filipino	13,771	26.8	29.9	74,566	42.2	32.0
Asian Indian¶	3,627	38.3	34.0	27,841	58.5	50.3
Korean¶	844	§	§	24,023	19.1	16.1
Samoan¶	1,845	15.2	17.7	3,005	32.3	31.0
Vietnamese¶	351	§	§	33,745	24.3	19.4
Total**	**9,280,027**	**24.8**	**25.0**	**2,078,873**	**28.0**	**26.4**

*Per 1000 singleton live-born infants in specified population.
†Women for whom place of birth and diabetes status were reported.
§Numbers were too small for meaningful analysis.
¶Data were available for seven states (California, Hawaii, Illinois, New Jersey, New York, Texas, and Washington).
**Includes races other than those listed.

late or no prenatal care. The percentage of mothers without diabetes who had late or no care ranged from 1.1% of Cuban mothers to 8.7% of Samoan mothers, including ≥4% of American Indian, Mexican, non-Hispanic black, Puerto Rican, and Central and South American mothers. Late or no prenatal care among all mothers within these racial/ethnic groups was consistently higher regardless of maternal age.

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Editorial Note: During 1993–1995, at least 2.5% of women who had a live-born infant had maternal diabetes, slightly higher than the 2.1% reported for 1989 (*9*). This difference may reflect, in part, improved reporting rather than an increase in diabetes prevalence. These data probably underestimate the true prevalence of diabetes during pregnancy (*1,8–10*). Prevalence estimates have been higher in most universally screened clinic populations (*1*).

Prevalence underestimation may have been greater in populations that were less likely to receive diabetes screening because of younger maternal age distributions

TABLE 3. Percentage distribution of month prenatal care began and annual average number of women with late, inadequate, or no prenatal care, by race/ethnicity and diabetes status of mother — United States, 1993–1995

Race/Ethnicity	No.*	1–3 months		4–7 months		8–9 months or no care		Average no. of mothers per year with late or no care†	Average no. of mothers per year with inadequate or no care§
		With diabetes	Without diabetes	With diabetes	Without diabetes	With diabetes	Without diabetes		
Non-Hispanic									
White	6,987,365	89.2	86.2	10.1	12.3	0.8	1.5	35,233	319,333
Black	173,029	77.3	67.9	20.5	26.6	2.2	5.5	31,539	183,867
Hispanic									
Mexican	1,313,659	72.0	66.9	25.6	27.6	2.4	5.6	24,047	144,495
Puerto Rican	155,355	77.1	71.6	20.6	24.5	2.3	4.0	2,023	14,627
Cuban	34,927	90.4	89.3	8.7	9.6	¶	1.1	132	1,241
Central or South American	263,138	71.8	71.0	25.3	25.0	2.9	4.0	3,482	25,452
American Indian/ Alaskan Native	108,831	71.1	64.7	25.6	29.1	3.3	6.2	2,111	12,705
Asian/Pacific Islander									
Chinese	76,028	88.4	85.4	10.5	13.0	1.1	1.7	415	3,681
Japanese	25,429	90.2	88.6	9.1	10.0	¶	1.4	115	961
Hawaiian	16,373	79.8	74.3	19.6	22.4	¶	3.3	175	1,392
Filipino	87,176	85.6	80.3	13.3	17.5	1.0	2.3	641	5,671
Asian Indian**	30,675	82.6	81.5	14.6	16.0	2.8	2.5	261	1,888
Korean**	24,111	80.8	79.8	17.7	17.7	¶	2.6	203	1,623
Samoan**	4,673	59.0	56.1	36.1	35.2	¶	8.7	134	682
Vietnamese**	33,344	85.1	81.4	13.1	16.2	¶	2.5	272	2,061
Total††	**11,286,002**	**84.3**	**79.9**	**14.4**	**17.3**	**1.3**	**2.8**	**105,122**	**751,673**

*Women for whom month prenatal care began and diabetes status were reported.
†Care beginning in the eighth or ninth month of pregnancy or no care.
§Care beginning after the third month of pregnancy or no care.
¶Numbers were too small for meaningful analysis.
**Data available for seven states (California, Hawaii, Illinois, New Jersey, New York, Texas, and Washington).
††Includes races other than those listed.

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and/or late or no prenatal care. Selective screening based on maternal age does not detect a substantial number of diabetes cases. Age and racial/ethnic differences in the timing and adequacy of prenatal care also may have influenced reported prevalence rates because all but the most overt cases of gestational diabetes may have remained undetected in women who initiated prenatal care in the eighth or ninth month of pregnancy or who received no care.

Preconception counseling and treatment is recommended for all women with pregestational diabetes. Screening to detect gestational diabetes is recommended during weeks 24–28 of pregnancy, followed by treatment during the remainder of pregnancy and postpartum follow-up (*4,6*). Initiation of prenatal care after the first trimester precludes adequate treatment of women with pregestational diabetes, and late or no prenatal care minimizes adequate screening and treatment of gestational diabetes. Among mothers with diabetes, approximately 20% of non-Hispanic black, Hispanic (except Cuban), American Indian, Samoan, and Hawaiian women initiated care after the first trimester.

Diabetes prevalence increased with maternal age regardless of race/ethnicity. Both older age and increased screening of older mothers may contribute to the age-associated rate increase. The older childbearing ages of Filipino and Chinese women, compared with the reference population, accounts for their lower adjusted rates. In comparison, the age-adjusted diabetes rate for Asian Indian women remained substantially higher than the rate for all other groups despite their older maternal age distribution.

Differences in childbearing age distributions by birthplace may account for some of the variation in diabetes rates between U.S.-born women and those born elsewhere. U.S.-born women generally have younger childbearing ages than women born elsewhere. However, diabetes rate differences by birthplace were not solely attributable to differing age distributions among most ethnic groups.

The findings in this report are limited by the inability to distinguish between pregestational and gestational diabetes on birth certificates. The inclusion of such data on birth certificates is being considered.

Recent studies suggest that the prevalence of diabetes among women of childbearing age is increasing in the United States (*10*). Increasing immigration among populations with high rates of type 2 diabetes, and the impact of acculturation on these risks (*1*), underscores the importance of national surveillance for diabetes prevalence during pregnancy (*7–9*). Identifying and monitoring the prevalence of pregestational diabetes may assist in targeting prenatal care efforts aimed at preventing adverse outcomes that may occur when glucose is inadequately controlled early in pregnancy (*2,4,6*). Timely diabetes screening is essential for appropriate identification and treatment of gestational diabetes (*4,5*). Increased outreach efforts to provide care to the populations least likely to obtain care and accurate recording of diabetes and prenatal care use on the birth certificate should contribute to improvements in diabetes surveillance and improved pregnancy outcomes.

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Progress Toward Global Eradication of Poliomyelitis, 1997

In 1988, the World Health Assembly adopted the goal of eradicating poliomyelitis by 2000 (*1*). Substantial progress toward this goal has been reported from many areas of the world (*2*). Since 1988, all but four countries with endemic polio have conducted National Immunization Days* (NIDs), and most countries have established sensitive surveillance systems for acute flaccid paralysis (AFP). This report updates progress toward global polio eradication in 1997 based on data available from the World Health Organization (WHO) as of May 18, 1998.

PROGRESS IN IMPLEMENTING STRATEGIES

Routine vaccination

Global coverage with three doses of oral poliovirus vaccine (OPV3) among infants was 73% in 1988 and was 81% during 1996–1997 (Figure 1). OPV3 coverage remains lowest in the African Region (AFR) (54% in 1996); however, OPV3 coverage was >50% for the first time in 1996.

Supplementary vaccination

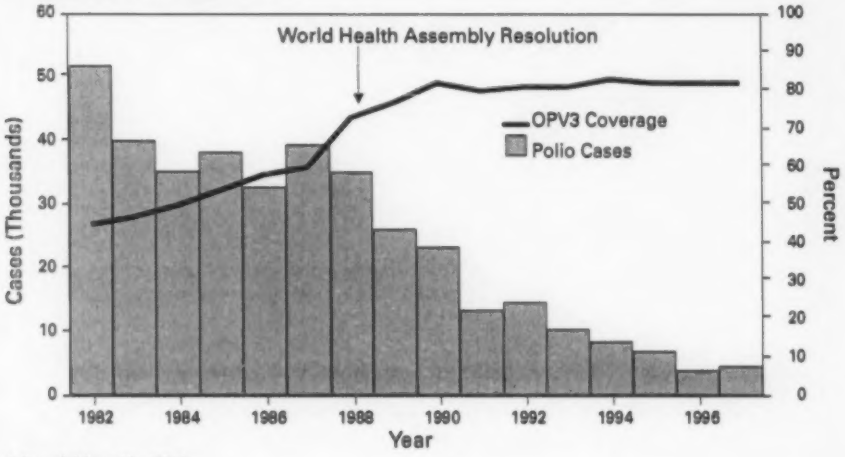
During 1997, approximately 450 million children aged <5 years in 80 countries were vaccinated during NIDs. As of May 1998, NIDs have been conducted in every country with endemic polio, including all countries in Asia, Europe, and Africa (except the Democratic Republic of Congo [DR Congo], Liberia, Sierra Leone, and Somalia). NIDs are planned during 1998 in DR Congo, Sierra Leone, Somalia, and possibly Liberia.

Initiatives to coordinate NIDs across national and regional borders continued in 1997. For the third consecutive year, in April and May 1997, "Operation MECACAR" synchronized NIDs in 19 countries of the European Region (EUR) and Eastern Mediterranean Region (EMR) (including the Russian Federation) and achieved OPV3 coverage of >90% (60 million children). During December 1997, eight countries in the South East Asian Region (SEAR) coordinated NIDs to vaccinate 190 million children during a 1-week period. Reported OPV3 coverage was >85% in Afghanistan and >90% in

*Mass campaigns over a short period (days to weeks) in which two doses of oral poliovirus vaccine are administered to all children in the target group, regardless of prior vaccination history, with an interval of 4–6 weeks between doses.

Poliomyelitis — Continued

FIGURE 1. Reported coverage with three doses of oral poliovirus vaccine (OPV3), administered through routine vaccination programs, and poliomyelitis cases, by year — worldwide, 1982–1997*



*As of May 18, 1998.

Bangladesh, India, and Pakistan. NIDs in India reached 134 million children in 1 day during December 1997.

Mopping-up vaccination

Targeted supplementary house-to-house vaccination activities ("mopping-up campaigns") were conducted in high-risk areas (areas identified as potential or known foci of continued poliovirus transmission based on surveillance for AFP). During May–June 1997, mopping-up vaccination targeted approximately 1.1 million children aged <5 years living in the Mekong River area of Cambodia and Vietnam and in parts of Laos.

AFP surveillance

AFP surveillance† requires detection, investigation, and reporting of AFP cases among children aged <15 years. AFP surveillance is monitored by two main performance indicators: 1) the sensitivity of AFP reporting (target: nonpolio AFP rate of more than one case per 100,000 children aged <15 years); and 2) the completeness of specimen collection (i.e., two adequate stool specimens from >80% of persons with AFP). From 1996 to 1997, the global rate of nonpolio AFP increased from 0.6 to 0.8 (Table 1), and rates of more than one were reported in EUR and the Western Pacific Region (WPR). AFP reporting improved in EMR and SEAR (Figure 2, Table 1). In 1997, the proportion of AFP cases with adequate specimens was 65% worldwide, with substantial regional variations (Table 1).

In 1997, AFP surveillance was established in several countries (e.g., Afghanistan and many sub-Saharan African countries), and case-based AFP reporting was

†A confirmed case of polio is defined as AFP and at least one of the following: 1) laboratory confirmed wild poliovirus infection, 2) residual paralysis at 60 days, 3) death, or 4) no follow-up investigation at 60 days.

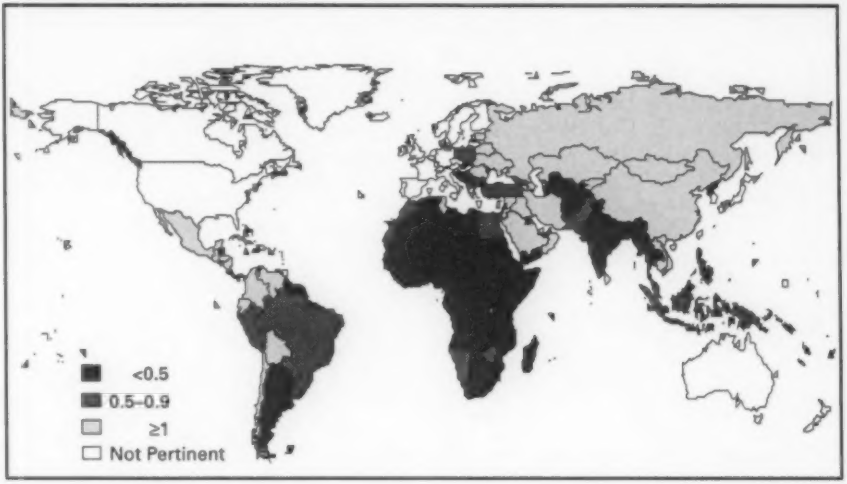
TABLE 1. Confirmed poliomyelitis cases, acute flaccid paralysis (AFP) surveillance performance indicators, and poliovirus strain detected, by World Health Organization region*, 1996 and 1997

Region	No. reported AFP cases		Nonpolio AFP rate†		% AFP cases with adequate specimens§		Polio cases				Wild polivirus strain detected in 1997
							1996		1997		
	1996	1997	1996	1997	1996	1997	Confirmed	Wild virus-associated	Confirmed	Wild virus-associated	
AFR	2,377	478	0.15	0.16	—	24%	1949	(0)	219	(34)	P1/P2/P3
AMR	1,963	1,856	1.20	0.95	76%	74%	0		0		—
EMR	1,775	2,846	0.72	0.97	63%	63%	532	(268)	1023	(261)	P1/P2/P3
EUR	1,039	1,596	0.69	1.12	68%	69%	193	(86)	7	(6)	P1
SEAR	1,408	4,581	0.04	0.26	11%	39%	1203	(17)	2858	(273)	P1/P2/P3
WPR	5,295	5,961	1.17	1.35	79%	84%	197	(21)	9	(9)	P1
Total	**13,857**	**17,318**	**0.58**	**0.84**	**—**	**65%**	**4074**	**(392)**	**4116**	**(583)**	

*The regions are African (AFR), American (AMR), Eastern Mediterranean (EMR), European (EUR), South East Asian (SEAR), and Western Pacific (WPR).
†Number of cases of AFP per 100,000 children aged <15 years.
§Two stool specimens that are collected within 14 days of onset of paralysis from a person with AFP and that arrive in the laboratory in good condition.

Poliomyelitis — Continued

FIGURE 2. Nonpolio AFP rate per 100,000 children aged <15 years, by country, 1997



introduced in India. AFP surveillance has not been initiated in 10 African countries (Burundi, Congo, Equatorial Guinea, Eritrea, Gabon, Gambia, Liberia, Mauritius, Rwanda, and Sierra Leone).

Laboratory network

The Global Polio Laboratory Network comprises 67 national, 14 regional, and six specialized laboratories (*3*). In 1997, WHO initiated a process to formally accredit each laboratory. In April 1998, a total of 46 of 67 national laboratories were reviewed; of these, 28 (61%) were accredited, 11 (24%) received provisional accreditation, and seven (15%) failed.

IMPACT OF STRATEGIES ON POLIO INCIDENCE

As of 1998, a total of 4116 polio cases with onset during 1997 were reported worldwide. Data for 1997 are not complete, mainly because of incomplete and delayed reporting from Africa. Although the 1997 total exceeds the number of cases confirmed in 1996 (4074), a direct comparison is difficult because AFP reporting has improved substantially in 1997. Compared with 1988, when the global eradication goal was established, the number of reported cases declined by 89%.

In AFR, the impact of supplementary vaccination and the change in incidence from 1996 to 1997 is difficult to measure because 1997 surveillance data are incomplete (Table 1). However, two large poliovirus reservoirs remain, one each in DR Congo and Nigeria.

In EMR, the number of reported polio cases increased from 532 in 1996 to 1023 in 1997, primarily because of improved surveillance and outbreaks in Pakistan. In Egypt, the number of reported cases decreased from 100 in 1996 to 14 in 1997, despite improvements in surveillance for AFP.

Poliomyelitis — Continued

In EUR, the number of reported polio cases decreased from 193 in 1996 to seven in 1997. Except for one clinically confirmed case in Tajikistan, all cases in 1997 were confirmed by poliovirus isolation and were confined to southeastern Turkey.

In SEAR, the number of reported polio cases increased from 1203 in 1996 to 2858 in 1997, primarily reflecting improved surveillance in India and a large outbreak of 751 cases in Uttar Pradesh. AFP reporting improved in most other countries in SEAR, with increases in the number of clinically confirmed cases from 1996 to 1997 in Bangladesh (97 to 191), India (1005 to 2074), Indonesia (77 to 507), Myanmar (eight to 55), and Thailand (one to 19). In 1997, wild polioviruses were isolated from four countries in SEAR (Bangladesh, India, Nepal, and Thailand).

In WPR, nine virologically confirmed cases were reported from the Mekong Delta area of Cambodia and Vietnam. The last case reported from WPR occurred in March 1997 near Phnom Penh in Cambodia.

Reported by: Global Program for Vaccines and Immunization, World Health Organization, Geneva, Switzerland. Respiratory and Enteric Viruses Br, Div of Viral and Rickettsial Diseases, National Center for Infectious Diseases; Vaccine-Preventable Disease Eradication Div, National Immunization Program, CDC.

Editorial Note: Since 1988, substantial progress in polio eradication has been reported from all six WHO regions (*2*). In 1997, several factors contributed to this progress, including 1) widespread use of NIDs and mopping-up campaigns, 2) accreditation by WHO of 28 national polio laboratories, 3) establishment of sensitive surveillance systems in virtually all countries with endemic polio, and 4) expansion of the "Kick Polio out of Africa" campaign (*4*).

In AFR, limited laboratory capacity is a barrier to improved AFP surveillance. Only 13 laboratories in the African laboratory network serve 31 countries, which requires frequent specimen transport between neighboring countries.

Poliovirus transmission occurs primarily in southern Asia and sub-Saharan Africa, and transmission is intense in countries with large populations (e.g., Bangladesh, India, and Pakistan in Asia and DR Congo, Ethiopia, and Nigeria in Africa). Except for DR Congo, all countries have initiated NIDs and have reduced poliovirus transmission. However, poliovirus type 2, usually the first serotype to be eliminated once NIDs have started, was isolated in Afghanistan, Benin, India, and Pakistan in 1997, suggesting that large population subgroups remain unvaccinated. Although type 2 virus was detected in only one African country in 1997, virologic surveillance in AFR remains insufficient to document the presence or absence of this virus serotype in most of sub-Saharan Africa.

Recent civil wars in Afghanistan, Congo Republic, DR Congo, Sudan, and Tajikistan hinder NIDs and AFP surveillance. Four countries with endemic polio (DR Congo, Liberia, Sierra Leone, and Somalia) have not conducted NIDs and are affected by ongoing conflicts. Interrupting poliovirus transmission in these countries, in which recognized governments are often absent and the provision of international assistance may be difficult, remains a major concern.

The costs of polio eradication are shared by countries with endemic polio and the international community. Individual countries provided 80% of the total cost for polio eradication in AMR, and China and Indonesia contributed even higher national shares. However, in developing countries, most of the cost to implement polio eradication strategies will require external funding. An estimated $1 billion, primarily for

Poliomyelitis — Continued

operational costs of NIDs, vaccine, and surveillance, will be needed for polio eradication from 1998 to 2005; two thirds of these funds are needed during 1998–2000.

An international coalition of partners supporting the eradication effort in countries with endemic polio include Rotary International, CDC, United States Agency for International Development (USAID), United Nations Children's Fund (UNICEF), WHO, and the governments of Japan, Great Britain, Denmark, Germany, and others. Progress toward global polio eradication has led to the certification of polio elimination in AMR (*5*), the probable interruption of poliovirus transmission in WPR (*6*), the restriction of poliovirus transmission to one country in EUR (*7*), and the strengthening of national vaccination programs worldwide. However, global eradication requires the cessation of poliovirus transmission everywhere. Fewer than 1000 days remain to reach the 2000 target (*8*). Success will depend on securing the additional resources to conduct and maintain eradication strategies in the remaining countries with endemic polio and sustained political commitment.

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3. CDC. Status of the global laboratory network for poliomyelitis eradication, 1994–1996. MMWR 1997;46:692–4.
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Notice to Readers

Satellite Broadcast on Risk Assessment in the Infectious Disease Laboratory

CDC and the Public Health Training Network (PHTN) will cosponsor *Laboratory Risk Assessment: What, Why, and How*, a live satellite broadcast, on July 23, 1998, from 2 p.m. to 4 p.m. eastern daylight time. This broadcast is designed for infectious disease personnel from public health, hospital, physician office, and research laboratories; laboratory directors, supervisors, technologists, technicians, and researchers; and laboratory safety officers, trainers, designers, engineers, and administrators.

This interactive training program will provide the tools for performing risk assessments in the infectious disease laboratory. Participants will perform a risk assessment in a simulated mycobacteriology laboratory. U.S. participants can interact with the instructors through toll-free telephone, fax, and TTY lines. Continuing education credits for various professions will be offered based on 2 hours of instruction.

Participants can register for this program by calling (800) 418-7246. There is no charge to view this program. Participants requesting continuing education credit must

Notices to Readers — Continued

register before June 12, 1998. Additional information on this and other PHTN programs is available from the World-Wide Web, http://www.cdc.gov/phtn.

Notice to Readers

Satellite Broadcast on Vaccinating Adults

CDC and the Public Health Training Network will cosponsor a satellite broadcast for physicians, physician assistants, nurses, nurse practitioners, pharmacists, medical students, and others who provide vaccinations or establish immunization policy. *Vaccinating Adults: The Technical Issues* will be held June 4, 1998 from 9 a.m. to 11:30 a.m. eastern daylight time (EDT), with a repeat broadcast from noon to 2:30 p.m. EDT. The first broadcast will be live; the second will be a taped rebroadcast of the morning program with a live question and answer session. For both broadcasts, participants will be able to interact with the instructors through toll-free telephone, FAX, and TTY lines. The course will be simultaneously translated into Spanish for selected sites. Continuing education credits for various professions will be offered based on 2.5 hours of instruction. Pharmacy credits will not be offered for this course.

Course registration information for the English broadcasts is available from state health department immunization programs. Additional information about the Spanish broadcasts is available on the World-Wide Web, http://www.cdc.gov/nip.

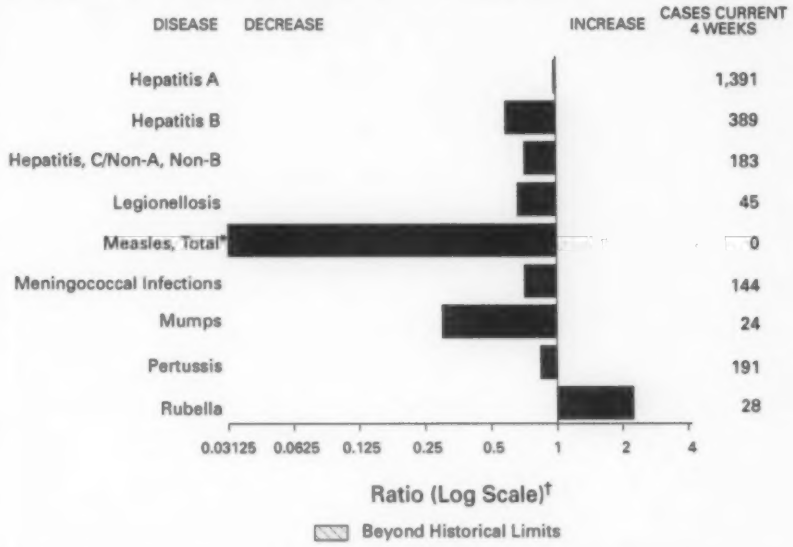
Notice to Readers

International Course in Applied Epidemiology

CDC and Emory University will cosponsor an international course in applied epidemiology designed for globally based public health professionals. This course will be held at CDC during October 5–30, 1998. The course emphasizes the practical application of epidemiology to public health problems and comprises lectures, workshops, classroom exercises (including actual epidemiologic problems), and computer labs. Topics covered include descriptive epidemiology and biostatistics, analytic epidemiology, epidemic investigations, public health surveillance, surveys and sampling, computers and Epi Info software, and discussions of selected prevalent diseases. There is a tuition charge.

Applications must be received by August 31, 1998. Additional information and applications are available from Department PSB, Rollins School of Public Health, Emory University, 7th floor, 1518 Clifton Road, N.E., Atlanta GA 30322; telephone (404) 727-3485; fax (404) 727-4590; or e-mail ogostan@sph.emory.edu.

FIGURE I. Selected notifiable disease reports, comparison of provisional 4-week totals ending May 23, 1998, with historical data — United States



* The large apparent decrease in the number of reported cases of measles (total) reflects dramatic fluctuations in the historical baseline. (Ratio [log scale] for week 20 measles [total] is 0.00000).
† Ratio of current 4-week total to mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

TABLE I. Summary — provisional cases of selected notifiable diseases, United States, cumulative, week ending May 23, 1998 (20th Week)

	Cum. 1998		Cum. 1998
Anthrax	-	Plague	-
Brucellosis	8	Poliomyelitis, paralytic¶	-
Cholera	3	Psittacosis	15
Congenital rubella syndrome	2	Rabies, human	-
Cryptosporidiosis*	662	Rocky Mountain spotted fever (RMSF)	32
Diphtheria	1	Streptococcal disease, invasive Group A	893
Encephalitis: California*	-	Streptococcal toxic-shock syndrome*	25
eastern equine*	-	Syphilis, congenital**	64
St. Louis*	-	Tetanus	8
western equine*	-	Toxic-shock syndrome	52
Hansen Disease	45	Trichinosis	5
Hantavirus pulmonary syndrome*†	2	Typhoid fever	109
Hemolytic uremic syndrome, post-diarrheal*	10	Yellow fever	-
HIV infection, pediatric*§	88		

- no reported cases
* Not notifiable in all states.
† Updated weekly from reports to the Division of Viral and Rickettsial Diseases, National Center for Infectious Diseases (NCID).
§ Updated monthly to the Division of HIV/AIDS Prevention–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention (NCHSTP), last update April 26, 1998.
¶ One suspected case of polio with onset in 1998 has also been reported to date.
** Updated from reports to the Division of STD Prevention, NCHSTP.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending May 23, 1998, and May 17, 1997 (20th Week)

Reporting Area	AIDS		Chlamydia		*Escherichia coli* O157:H7		Gonorrhea		Hepatitis C/NA,NB	
					NETSS†	PHLIS§				
	Cum. 1998*	Cum. 1997	Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1998	Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1997
UNITED STATES	18,067	22,446	186,752	174,647	357	168	110,456	106,060	1,630	1,121
NEW ENGLAND	489	678	7,230	6,638	40	25	1,871	2,267	17	30
Maine	10	25	364	358	1	-	14	20	-	-
N.H.	14	14	337	297	7	5	32	53	-	3
Vt.	10	18	146	145	-	-	11	22	-	1
Mass.	211	279	3,294	2,710	19	15	792	852	16	24
R.I.	40	55	964	800	3	1	139	193	1	2
Conn.	204	285	2,125	2,328	10	4	883	1,127	-	-
MID. ATLANTIC	4,607	6,832	24,399	21,613	30	9	13,389	13,266	151	123
Upstate N.Y.	546	1,122	N	N	22	-	1,937	2,369	125	94
N.Y. City	2,631	3,293	13,244	11,653	2	4	5,616	5,249	-	-
N.J.	823	1,538	3,628	3,969	6	4	2,398	2,769	-	-
Pa.	608	879	7,527	5,991	N	1	3,418	2,879	26	29
E.N. CENTRAL	1,299	1,639	32,562	27,852	58	19	22,133	16,388	184	270
Ohio	242	348	9,657	8,680	16	3	5,858	5,311	5	5
Ind.	275	301	2,706	3,363	10	7	1,769	2,296	3	6
Ill.	495	505	8,937	4,357	18	-	7,173	2,123	7	43
Mich.	218	394	8,372	7,309	14	4	6,227	4,950	169	201
Wis.	69	91	2,890	4,143	N	5	1,106	1,708	-	15
W.N. CENTRAL	288	449	10,963	11,632	45	26	5,485	5,196	100	25
Minn.	50	79	1,830	2,473	20	12	650	880	-	1
Iowa	14	56	1,639	1,778	3	-	505	453	10	12
Mo.	139	210	4,437	4,431	8	12	3,312	2,962	86	3
N. Dak.	4	3	290	339	1	1	29	23	-	2
S. Dak.	7	2	616	442	1	-	104	41	-	-
Nebr.	32	34	915	724	6	-	331	266	2	1
Kans.	42	63	1,236	1,445	6	1	554	591	2	6
S. ATLANTIC	4,121	5,759	40,137	32,902	31	14	32,533	32,058	71	81
Del.	44	69	992	612	-	1	522	420	-	-
Md.	488	725	3,217	2,768	10	4	3,544	5,072	3	6
D.C.	343	400	N	N	-	-	1,365	1,516	-	-
Va.	284	484	3,500	4,287	N	7	2,336	3,177	1	8
W. Va.	36	36	1,150	1,220	N	-	324	379	3	5
N.C.	273	282	8,753	6,569	7	2	7,366	6,294	10	22
S.C.	283	293	7,320	4,751	1	-	4,725	4,236	-	17
Ga.	501	690	8,863	3,377	2	-	7,308	4,453	8	-
Fla.	1,869	2,778	6,342	9,318	10	-	5,043	6,511	46	23
E.S. CENTRAL	591	628	13,403	12,742	27	7	12,655	12,900	51	136
Ky.	87	61	2,329	2,546	6	-	1,298	1,695	9	6
Tenn.	184	302	4,735	4,846	16	7	3,963	4,070	39	83
Ala.	183	153	3,608	3,088	5	-	4,621	4,329	3	5
Miss.	137	112	2,731	2,263	-	-	2,773	2,806	-	42
W.S. CENTRAL	1,953	2,504	22,753	20,791	24	4	13,471	13,830	452	124
Ark.	71	96	1,228	1,022	1	1	1,108	1,713	1	4
La.	333	428	4,731	3,098	-	-	3,940	2,855	2	77
Okla.	106	116	4,052	2,930	3	3	2,179	1,840	1	4
Tex.	1,443	1,864	12,742	13,741	20	-	6,244	7,422	448	39
MOUNTAIN	526	706	6,997	9,822	29	17	2,646	2,939	286	136
Mont.	13	18	415	391	2	-	21	14	4	5
Idaho	12	22	715	578	2	-	83	43	80	19
Wyo.	2	13	268	200	-	-	11	22	128	45
Colo.	91	194	-	1,736	5	4	917	752	10	17
N. Mex.	76	66	1,359	1,322	7	4	267	501	35	27
Ariz.	200	157	3,315	3,848	N	5	1,213	1,212	1	15
Utah	46	46	672	660	9	1	62	87	16	2
Nev.	87	190	253	1,087	4	3	92	308	12	6
PACIFIC	2,223	3,253	28,308	30,655	73	45	6,293	7,216	318	196
Wash.	165	241	4,301	3,575	17	22	718	784	9	10
Oreg.	64	144	2,137	1,807	23	17	292	275	2	2
Calif.	1,947	2,826	20,370	24,092	33	3	5,002	5,803	253	116
Alaska	11	18	726	541	-	-	127	175	1	-
Hawaii	36	24	774	640	N	3	154	179	53	68
Guam	-	2	8	181	N	-	2	24	-	-
P.R.	666	517	U	U	-	U	158	250	-	44
V.I.	15	28	N	N	N	U	-	-	-	-
Amer. Samoa	-	-	-	-	N	U	-	-	-	-
C.N.M.I.	-	-	N	N	N	U	7	15	-	2

N: Not notifiable U: Unavailable -: no reported cases C.N.M.I.: Commonwealth of Northern Mariana Islands

*Updated monthly to the Division of HIV/AIDS Prevention–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention, last update April 26, 1998.

†National Electronic Telecommunications System for Surveillance.

§Public Health Laboratory Information System.

TABLE II. (Cont'd.) Provisional cases of selected notifiable diseases, United States, weeks ending May 23, 1998, and May 17, 1997 (20th Week)

Reporting Area	Legionellosis		Lyme Disease		Malaria		Syphilis (Primary & Secondary)		Tuberculosis		Rabies, Animal
	Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1997	Cum. 1998*	Cum. 1997	Cum. 1998
UNITED STATES	387	318	1,546	1,222	396	506	2,525	3,384	2,363	6,061	2,586
NEW ENGLAND	22	26	367	255	17	22	29	66	107	151	504
Maine	1	1	1	3	1	1	1	-	U	15	80
N.H.	2	4	7	6	3	2	1	-	2	1	33
Vt.	1	3	2	2	-	1	2	-	1	2	29
Mass.	8	10	77	47	11	16	20	36	87	79	157
R.I.	4	4	26	33	2	2	-	-	17	7	33
Conn.	6	4	254	164	-	-	5	30	U	47	172
MID. ATLANTIC	85	56	945	753	110	138	86	166	207	1,106	567
Upstate N.Y.	25	12	499	96	28	22	9	18	U	148	390
N.Y. City	14	2	2	59	51	82	21	33	U	578	U
N.J.	4	7	124	190	17	24	18	77	207	226	77
Pa.	42	35	320	408	14	10	38	38	U	154	100
E.N. CENTRAL	119	124	23	21	27	51	362	297	172	596	16
Ohio	52	59	22	7	2	4	69	95	5	120	15
Ind.	17	16	1	9	1	4	65	68	U	51	-
Ill.	12	5	-	2	6	24	136	24	167	293	1
Mich.	24	31	-	3	17	15	72	45	U	89	-
Wis.	14	13	U	U	1	4	20	65	U	43	-
W.N. CENTRAL	29	24	11	12	21	11	63	66	74	183	260
Minn.	3	1	3	9	8	5	3	13	U	49	48
Iowa	2	4	7	-	2	3	-	3	U	20	50
Mo.	11	2	-	2	8	2	48	34	62	71	15
N. Dak.	-	2	-	-	1	-	-	-	U	4	45
S. Dak.	-	1	-	-	-	-	1	-	9	2	54
Nebr.	10	10	-	1	-	1	4	-	3	4	2
Kans.	3	4	1	-	2	-	7	16	U	33	46
S. ATLANTIC	51	39	134	125	102	92	1,097	1,368	503	1,084	840
Del.	6	5	-	24	1	2	12	11	-	13	17
Md.	10	11	100	84	33	32	257	382	98	107	209
D.C.	3	2	4	5	7	6	31	49	43	34	-
Va.	4	4	6	-	15	22	72	113	89	111	250
W. Va.	N	N	4	-	-	-	2	3	21	21	36
N.C.	6	5	3	3	8	6	319	273	142	127	136
S.C.	4	2	1	1	3	5	130	168	U	90	62
Ga.	-	-	2	1	13	12	191	243	U	200	45
Fla.	17	10	14	7	22	7	83	126	U	381	85
E.S. CENTRAL	12	10	17	25	10	14	417	746	-	452	109
Ky.	8	-	3	3	1	3	46	62	U	63	16
Tenn.	4	4	7	9	6	4	212	304	U	146	66
Ala.	-	2	7	2	3	4	98	193	U	161	27
Miss.	-	4	-	11	-	3	61	187	U	82	-
W.S. CENTRAL	9	5	5	3	10	7	272	464	41	904	89
Ark.	-	-	2	1	-	1	47	65	41	76	1
La.	-	1	-	1	4	4	116	153	-	58	-
Okla.	4	1	-	-	1	2	20	48	U	66	68
Tex.	5	3	3	1	5	-	89	198	U	704	-
MOUNTAIN	24	18	1	2	19	30	80	69	117	189	60
Mont.	1	1	-	-	-	2	-	-	12	2	19
Idaho	-	1	-	-	2	-	-	-	4	4	-
Wyo.	1	1	-	-	-	1	-	-	2	2	35
Colo.	4	4	-	-	6	15	4	2	U	42	1
N. Mex.	2	1	-	-	6	4	10	-	7	6	-
Ariz.	4	4	-	1	4	3	61	59	71	83	5
Utah	11	4	-	-	1	1	3	2	21	6	-
Nev.	1	2	1	1	-	4	2	6	U	44	-
PACIFIC	36	16	43	26	80	141	119	142	1,142	1,396	161
Wash.	3	3	1	-	6	8	7	6	-	116	-
Oreg.	-	-	5	8	9	8	2	3	U	57	-
Calif.	33	12	37	18	64	121	110	131	1,066	1,109	146
Alaska	-	-	-	-	-	2	-	1	16	35	15
Hawaii	-	1	-	-	1	2	-	1	60	79	-
Guam	-	-	-	-	-	-	-	3	-	13	-
P.R.	-	-	-	-	-	3	92	80	46	88	24
V.I.	-	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	-	-	1	5	8	-	-

N: Not notifiable U: Unavailable -: no reported cases

*Additional information about areas displaying "U" for cumulative 1998 Tuberculosis cases can be found in Notice to Readers, *MMWR* Vol. 47, No. 2, p. 39.

TABLE III. Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending May 23, 1998, and May 17, 1997 (20th Week)

Reporting Area	*H. influenzae*, invasive		Hepatitis (Viral), by type				Measles (Rubeola)					
			A		B		Indigenous		Imported†		Total	
	Cum. 1998*	Cum. 1997	Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1997	1998	Cum. 1998	1998	Cum. 1998	Cum. 1998	Cum. 1997
UNITED STATES	421	474	7,996	10,683	2,819	3,505	-	6	-	10	16	56
NEW ENGLAND	24	25	101	265	33	71	-	-	-	1	1	7
Maine	2	3	10	35	-	3	-	-	-	-	-	-
N.H.	1	3	6	16	7	5	-	-	-	-	-	-
Vt.	2	-	8	6	1	2	-	-	-	-	-	-
Mass.	17	16	26	133	12	35	-	-	-	1	1	7
R.I.	2	2	8	20	13	8	-	-	-	-	-	-
Conn.	-	1	44	55	-	18	-	-	-	-	-	-
MID. ATLANTIC	62	59	519	954	415	538	-	1	-	1	2	12
Upstate N.Y.	24	3	128	105	114	95	-	-	-	-	-	4
N.Y. City	10	20	137	431	114	218	-	-	-	-	-	5
N.J.	26	23	113	145	60	104	-	1	-	-	1	2
Pa.	2	13	141	273	127	121	-	-	-	1	1	1
E.N. CENTRAL	57	72	991	1,238	285	635	-	2	-	2	4	6
Ohio	27	36	122	169	26	37	-	-	-	-	-	-
Ind.	13	5	71	125	24	43	U	2	U	1	3	-
Ill.	16	20	158	318	51	125	-	-	-	-	-	5
Mich.	-	9	563	540	172	200	-	-	-	1	1	1
Wis.	1	-	77	86	12	230	-	-	-	-	-	-
W.N. CENTRAL	31	23	685	748	128	214	-	-	-	-	-	10
Minn.	17	14	28	64	11	17	-	-	-	-	-	1
Iowa	1	2	323	98	19	15	-	-	-	-	-	-
Mo.	9	3	267	420	78	159	-	-	-	-	-	1
N. Dak.	-	-	2	7	2	1	U	-	U	-	-	-
S. Dak.	-	2	8	12	1	-	-	-	-	-	-	8
Nebr.	-	1	13	22	6	8	-	-	-	-	-	-
Kans.	4	1	44	125	11	14	U	-	U	-	-	-
S. ATLANTIC	95	85	679	585	400	424	-	1	-	5	6	2
Del.	-	-	2	11	-	3	-	-	-	1	1	-
Md.	26	35	144	120	60	71	-	-	-	1	1	1
D.C.	-	-	25	13	6	18	-	-	-	-	-	1
Va.	11	6	110	68	40	45	-	-	-	2	2	-
W. Va.	3	3	1	5	3	6	-	-	-	-	-	-
N.C.	12	13	41	80	82	93	-	-	-	-	-	-
S.C.	3	3	12	54	-	41	-	-	-	-	-	-
Ga.	18	17	116	115	59	46	U	-	U	1	1	-
Fla.	22	8	228	119	150	101	-	1	-	-	1	-
E.S. CENTRAL	24	30	154	275	163	245	-	-	-	-	-	1
Ky.	3	4	8	30	18	16	-	-	-	-	-	-
Tenn.	15	18	110	167	119	154	-	-	-	-	-	-
Ala.	6	7	36	45	26	30	-	-	-	-	-	1
Miss.	-	1	-	33	-	45	U	-	U	-	-	-
W.S. CENTRAL	26	20	1,403	1,947	416	347	-	-	-	-	-	4
Ark.	-	1	24	102	23	22	-	-	-	-	-	-
La.	12	3	13	82	9	45	-	-	-	-	-	-
Okla.	12	14	230	652	26	11	-	-	-	-	-	-
Tex.	2	2	1,136	1,111	358	269	-	-	-	-	-	4
MOUNTAIN	59	51	1,323	1,606	334	360	-	-	-	-	-	3
Mont.	-	-	30	44	3	5	-	-	-	-	-	-
Idaho	-	1	91	70	16	12	-	-	-	-	-	-
Wyo.	-	1	26	18	7	9	-	-	-	-	-	-
Colo.	12	9	101	184	41	71	-	-	-	-	-	-
N. Mex.	4	3	74	107	126	123	-	-	-	-	-	-
Ariz.	33	13	848	759	91	72	-	-	-	-	-	2
Utah	4	3	90	284	28	38	-	-	-	-	-	-
Nev.	6	21	63	140	22	20	U	-	U	-	-	1
PACIFIC	43	109	2,141	3,065	645	681	-	2	-	1	3	11
Wash.	3	1	380	212	48	24	-	-	-	-	-	-
Oreg.	27	20	151	154	50	46	-	-	-	-	-	-
Calif.	10	84	1,580	2,622	538	595	-	2	-	1	3	8
Alaska	1	1	10	16	4	10	-	-	-	-	-	-
Hawaii	2	3	20	61	5	6	-	-	-	-	-	3
Guam	-	-	-	-	-	3	U	-	U	-	-	-
P.R.	2	-	16	148	226	527	-	-	-	-	-	-
V.I.	-	-	-	-	-	-	U	-	U	-	-	-
Amer. Samoa	-	-	-	-	-	-	U	-	U	-	-	-
C.N.M.I.	-	5	-	1	7	21	U	-	U	-	-	1

N: Not notifiable U: Unavailable - : no reported cases

*Of 99 cases among children aged <5 years, serotype was reported for 51 and of those, 24 were type b.

†For imported measles, cases include only those resulting from importation from other countries.

TABLE III. (Cont'd.) Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending May 23, 1998, and May 17, 1997 (20th Week)

Reporting Area	Meningococcal Disease		Mumps			Pertussis			Rubella		
	Cum. 1998	Cum. 1997	1998	Cum. 1998	Cum. 1997	1998	Cum. 1998	Cum. 1997	1998	Cum. 1998	Cum. 1997
UNITED STATES	1,180	1,646	2	179	275	34	1,437	2,111	2	202	37
NEW ENGLAND	95	101	-	-	7	-	245	479	-	32	-
Maine	4	8	-	-	-	-	5	6	-	-	-
N.H.	4	10	-	-	-	-	19	57	-	-	-
Vt.	1	2	-	-	-	-	24	161	-	-	-
Mass.	30	56	-	-	2	-	191	235	-	6	-
R.I.	3	6	-	-	4	-	-	12	-	-	-
Conn.	23	19	-	-	1	-	6	8	-	26	-
MID. ATLANTIC	123	165	-	10	29	2	167	180	-	93	13
Upstate N.Y.	30	38	-	3	4	2	101	62	-	89	2
N.Y. City	13	28	-	4	1	-	4	44	-	2	11
N.J.	35	32	-	-	4	-	5	10	-	2	-
Pa.	45	67	-	3	20	-	57	64	-	-	-
E.N. CENTRAL	151	241	-	27	33	2	143	206	-	-	3
Ohio	58	91	-	11	12	-	53	62	-	-	-
Ind.	25	27	U	2	4	U	42	22	U	-	-
Ill.	33	79	-	1	9	-	10	27	-	-	-
Mich.	17	22	-	13	7	2	21	28	-	-	-
Wis.	18	22	-	-	1	-	17	67	-	-	3
W.N. CENTRAL	98	118	-	18	7	-	125	112	1	3	-
Minn.	16	17	-	10	3	-	76	67	-	-	-
Iowa	14	23	-	5	3	-	26	7	-	-	-
Mo.	40	59	-	2	-	-	9	21	1	2	-
N. Dak.	-	1	U	1	-	U	-	2	U	-	-
S. Dak.	6	3	-	-	-	-	4	1	-	-	-
Nebr.	4	4	-	-	1	-	4	2	-	-	-
Kans.	18	11	U	-	-	U	6	12	U	1	-
S. ATLANTIC	203	275	-	30	37	4	105	174	-	4	1
Del.	1	4	-	-	-	-	-	-	-	-	-
Md.	19	29	-	-	4	-	19	73	-	-	-
D.C.	-	5	-	-	-	-	1	2	-	-	-
Va.	20	25	-	4	4	-	6	19	-	-	1
W. Va.	5	10	-	-	-	-	1	3	-	-	-
N.C.	27	48	-	7	6	-	42	35	-	3	-
S.C.	30	36	-	4	9	-	12	9	-	-	-
Ga.	40	51	U	1	5	U	1	5	U	-	-
Fla.	61	67	-	14	9	4	23	28	-	1	-
E.S. CENTRAL	86	113	-	-	15	2	38	39	-	-	-
Ky.	13	29	-	-	2	-	16	10	-	-	-
Tenn.	37	36	-	-	3	1	10	12	-	-	-
Ala.	36	31	-	-	5	1	12	10	-	-	-
Miss.	-	17	U	-	5	U	-	7	U	-	-
W.S. CENTRAL	131	150	-	26	31	10	88	44	1	55	3
Ark.	17	22	-	-	-	2	12	3	-	-	-
La.	25	29	-	2	7	-	-	7	-	-	-
Okla.	23	18	-	-	-	7	13	8	-	-	-
Tex.	66	81	-	23	24	1	63	26	1	55	3
MOUNTAIN	75	105	-	18	38	10	334	555	-	5	2
Mont.	2	7	-	-	-	-	1	5	-	-	-
Idaho	3	7	-	1	2	4	161	371	-	-	-
Wyo.	3	-	-	1	1	-	7	3	-	-	-
Colo.	17	31	-	2	3	1	52	133	-	-	-
N. Mex.	13	17	N	N	N	1	56	23	-	1	-
Ariz.	26	22	-	4	22	4	38	9	-	1	2
Utah	8	11	-	3	4	-	14	3	-	2	-
Nev.	3	10	U	5	4	U	7	8	U	1	-
PACIFIC	248	378	2	53	80	4	192	322	-	10	15
Wash.	28	46	1	5	9	4	116	152	-	8	2
Oreg.	48	81	N	N	N	-	12	21	-	-	-
Calif.	167	248	1	34	56	-	61	141	-	1	7
Alaska	1	1	-	2	5	-	-	2	-	-	-
Hawaii	4	2	-	12	10	-	4	6	-	1	6
Guam	-	1	U	-	1	U	-	-	U	-	-
P.R.	2	9	-	2	4	-	2	-	-	-	-
V.I.	-	-	U	-	-	U	-	-	U	-	-
Amer. Samoa	-	-	U	-	-	U	-	-	U	-	-
C.N.M.I.	-	-	U	-	1	U	-	-	U	-	-

N: Not notifiable U: Unavailable - no reported cases

TABLE IV. Deaths in 122 U.S. cities,* week ending May 23, 1998 (20th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
NEW ENGLAND	607	446	100	39	12	10	48
Boston, Mass.	130	87	27	10	4	2	11
Bridgeport, Conn.	43	33	6	3	-	1	4
Cambridge, Mass.	21	16	3	2	-	-	5
Fall River, Mass.	30	24	4	-	1	1	2
Hartford, Conn.	58	37	12	5	2	2	4
Lowell, Mass.	37	29	8	-	-	-	-
Lynn, Mass.	13	11	1	1	-	-	-
New Bedford, Mass.	33	28	2	2	1	-	3
New Haven, Conn.	43	29	7	5	1	1	5
Providence, R.I.	53	40	8	1	2	2	1
Somerville, Mass.	8	6	2	-	-	-	2
Springfield, Mass.	53	36	12	5	-	-	4
Waterbury, Conn.	31	26	2	2	1	-	-
Worcester, Mass.	54	44	6	3	-	1	7
MID. ATLANTIC	2,226	1,583	411	160	40	32	130
Albany, N.Y.	46	36	3	5	-	4	4
Allentown, Pa.	10	10	-	-	-	-	-
Buffalo, N.Y.	98	72	16	5	3	2	11
Camden, N.J.	26	22	2	1	1	-	2
Elizabeth, N.J.	23	13	6	1	-	3	-
Erie, Pa.	51	41	9	1	-	-	-
Jersey City, N.J.	49	26	12	8	1	2	1
New York City, N.Y.	1,103	753	223	93	20	14	37
Newark, N.J.	U	U	U	U	U	U	U
Paterson, N.J.	18	11	3	2	1	1	-
Philadelphia, Pa.	400	291	80	23	4	2	40
Pittsburgh, Pa.§	66	48	7	8	1	2	8
Reading, Pa.	31	26	4	-	1	-	3
Rochester, N.Y.	115	91	15	3	4	2	6
Schenectady, N.Y.	23	17	5	1	-	-	1
Scranton, Pa.	22	15	4	3	-	-	2
Syracuse, N.Y.	110	85	15	6	4	-	12
Trenton, N.J.	18	14	4	-	-	-	3
Utica, N.Y.	15	12	3	-	-	-	-
Yonkers, N.Y.	U	U	U	U	U	U	U
E.N. CENTRAL	1,832	1,244	356	127	50	55	109
Akron, Ohio	32	23	5	2	1	1	-
Canton, Ohio	44	38	4	1	-	1	2
Chicago, Ill.	407	243	95	37	18	14	28
Cincinnati, Ohio	94	60	23	2	6	3	7
Cleveland, Ohio	122	78	28	9	1	6	1
Columbus, Ohio	169	126	29	8	3	3	12
Dayton, Ohio	132	90	33	5	-	4	10
Detroit, Mich.	198	124	48	13	3	10	4
Evansville, Ind.	49	36	8	3	1	1	1
Fort Wayne, Ind.	14	12	1	1	-	-	2
Gary, Ind.	7	6	-	-	1	-	-
Grand Rapids, Mich.	61	44	7	5	3	2	7
Indianapolis, Ind.	205	133	37	23	6	6	15
Lansing, Mich.	28	22	4	2	-	-	1
Milwaukee, Wis.	85	61	14	8	1	1	9
Peoria, Ill.	50	35	7	4	2	2	5
Rockford, Ill.	32	23	6	2	1	-	1
South Bend, Ind.	49	44	3	1	-	1	2
Toledo, Ohio	U	U	U	U	U	U	U
Youngstown, Ohio	54	46	4	1	3	-	2
W.N. CENTRAL	748	529	133	44	19	13	36
Des Moines, Iowa	67	52	11	3	1	-	5
Duluth, Minn.	16	14	2	-	-	-	2
Kansas City, Kans.	34	23	5	5	1	-	1
Kansas City, Mo.	84	49	19	3	2	1	5
Lincoln, Nebr.	42	34	6	1	1	-	2
Minneapolis, Minn.	128	98	17	9	2	2	4
Omaha, Nebr.	92	68	16	3	4	1	5
St. Louis, Mo.	118	63	31	10	6	8	6
St. Paul, Minn.	91	76	9	4	1	1	5
Wichita, Kans.	76	52	17	6	1	-	1

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,048	671	237	89	38	13	49
Atlanta, Ga.	U	U	U	U	U	U	U
Baltimore, Md.	122	67	27	20	5	3	13
Charlotte, N.C.	73	52	15	2	2	2	6
Jacksonville, Fla.	127	79	37	8	2	1	-
Miami, Fla.	100	70	20	8	2	-	1
Norfolk, Va.	37	28	3	3	2	1	1
Richmond, Va.	58	34	16	6	1	1	4
Savannah, Ga.	38	29	6	2	1	-	5
St. Petersburg, Fla.	76	59	10	3	3	1	3
Tampa, Fla.	175	108	45	14	7	1	13
Washington, D.C.	232	135	58	23	13	3	3
Wilmington, Del.	10	10	-	-	-	-	-
E.S. CENTRAL	815	555	151	68	28	10	69
Birmingham, Ala.	167	107	38	15	4	-	16
Chattanooga, Tenn.	75	56	10	7	1	1	7
Knoxville, Tenn.	83	58	17	5	3	-	7
Lexington, Ky.	68	46	10	6	4	2	10
Memphis, Tenn.	178	123	33	15	6	1	11
Mobile, Ala.	80	56	12	7	3	2	2
Montgomery, Ala.	34	27	3	3	1	-	-
Nashville, Tenn.	130	82	28	10	6	4	16
W.S. CENTRAL	1,169	778	234	93	39	14	84
Austin, Tex.	55	37	15	2	1	-	3
Baton Rouge, La.	49	34	6	5	3	1	2
Corpus Christi, Tex.	49	27	12	5	3	1	1
Dallas, Tex.	179	107	35	21	15	1	4
El Paso, Tex.	33	24	6	1	1	1	-
Ft. Worth, Tex.	76	53	17	5	-	1	9
Houston, Tex.	388	240	71	36	16	5	32
Little Rock, Ark.	71	47	19	4	1	-	11
New Orleans, La.	U	U	U	U	U	U	U
San Antonio, Tex.	181	124	37	10	6	4	7
Shreveport, La.	U	U	U	U	U	U	U
Tulsa, Okla.	108	85	16	4	3	-	15
MOUNTAIN	1,001	681	172	73	38	28	79
Albuquerque, N.M.	106	71	26	6	1	2	6
Boise, Idaho	37	31	2	3	1	-	4
Colo. Springs, Colo.	57	42	10	2	2	1	3
Denver, Colo.	88	54	18	8	1	6	11
Las Vegas, Nev.	192	126	38	19	5	4	11
Ogden, Utah	29	24	3	1	1	-	7
Phoenix, Ariz.	225	133	43	18	20	8	17
Pueblo, Colo.	22	17	2	2	1	-	3
Salt Lake City, Utah	103	76	15	4	2	6	11
Tucson, Ariz.	142	107	15	10	4	1	6
PACIFIC	1,095	767	188	81	35	24	95
Berkeley, Calif.	10	9	-	-	-	1	1
Fresno, Calif.	100	76	12	5	7	-	5
Glendale, Calif.	20	15	4	1	-	-	3
Honolulu, Hawaii	73	53	15	4	-	1	3
Long Beach, Calif.	64	45	12	3	2	2	11
Los Angeles, Calif.	296	180	57	38	15	6	31
Pasadena, Calif.	24	18	4	-	-	2	4
Portland, Oreg.	U	U	U	U	U	U	U
Sacramento, Calif.	U	U	U	U	U	U	U
San Diego, Calif.	127	87	29	7	1	3	11
San Francisco, Calif.	118	81	21	9	3	4	11
San Jose, Calif.	U	U	U	U	U	U	U
Santa Cruz, Calif.	25	20	2	2	1	-	3
Seattle, Wash.	118	90	18	8	2	-	5
Spokane, Wash.	44	34	6	1	2	1	7
Tacoma, Wash.	76	59	8	3	2	4	-
TOTAL	10,541¶	7,254	1,982	774	309	199	699

U: Unavailable -: no reported cases

*Mortality data in this table are voluntarily reported from 122 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

†Pneumonia and influenza.

§Because of changes in reporting methods in this Pennsylvania city, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

¶Total includes unknown ages.

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